How persistent is generalised trust?

Abstract

There are at least two competing views on the foundations of generalised trust: experiential and cultural. The experiential perspective emphasises that trust is fragile and remains open to environmental influences throughout life, whilst the cultural perspective asserts that trust is a stable trait established early in pre-adult life through intergenerational transmission mechanisms. Utilising an innovative methodology applied to a major UK longitudinal survey, this article tests these alternative accounts by analysing the persistence of generalised trust throughout the life-course. In support of the cultural perspective, trust is found to be a relatively stable, persistent human trait. Whilst generalised trust is open to change, these changes are however temporary with an overriding tendency for individuals to revert back to their initial, long-term level. Greater emphasis should be placed on the establishment of initial, pre-adult trust, as changes induced by post-childhood environmental forces are likely to be prone to rapid decay.

Keywords: Generalised Trust, Persistence, Social Capital

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Introduction and Background

Generalised trust—general beliefs about the extent to which other people can be trusted, is essential for cooperative relationships (Ostrom, 2000), thriving democracies (Putnam, 1993; Tavits, 2006) and economic growth (Knack and Keefer, 1997). The propensity to trust predicts a range of other social behaviours related to cooperation, such as charity work and volunteering activities (Bekkers, 2012; Uslaner, 2002). Individuals with high trust in other people are also more likely to live longer, and experience better life satisfaction and physical health (Barefoot et al., 1998). Generalised trust—by not being based upon personal knowledge of the trusted—has also been termed in the literature as 'thin' interpersonal trust which differs from 'thick' interpersonal trust—the trust that people have in their family members, relatives and close friends (Dinesen, 2013; Khodyakov, 2007). As Uslaner (2008a) argues, generalised trust by being more unconditional in nature, holds greater potential for encouraging cooperation, coordination and the other societal factors that make democracy work.

A central debate on the formation of generalised trust has focused on the validity of the contrasting cultural and experiential perspectives (Uslaner, 2008b). The cultural perspective asserts that trust is a stable attitude, not shaped by immediate experiences (Uslaner, 2002, 2008b) and established early in pre-adult life through intergenerational transmission mechanisms such as childhood socioeconomic status, parental socialization, imitation, inculcation, genetics and even birth weight (Dohmen et al., 2012; Guiso et al., 2006; Petersen and Aarøe, 2015; Van Lange, 2015). People's trust can therefore be traced back to the trust of their parents and grandparents (Putnam, 1993; Uslaner, 2008b). An alternative view is the experiential perspective, where trust remains open to environmental influences throughout life. In this view, trust may be the result of living in a context of fair and impartial institutions (Dinesen, 2013). Individuals may also update their initial beliefs as they observe other people's

trustworthiness, a type of 'trust responsiveness' mechanism (Guerra and Zizzo, 2004). On this account, trust is fragile, since new and powerful post-childhood experiences, such as burglary or unexpected unemployment may change one's perception of another's trustworthiness. Prior empirical evidence, which primarily focuses on natural experiments in the context of migration and ethnic heritage data, suggests that trust exhibits both cultural and experiential foundations. Uslaner (2008b) found that people whose grandparents came to the United States from countries that have high levels of trust tend to have higher generalised trust. Dinesen (2012) in analysing whether first-generation immigrants from low-trust countries of origin are affected by migrating to high-trust countries, found that immigrants display higher levels of trust than comparable respondents in their country of origin. Resolving these alternate perspectives is critical from a public policy perspective. If trust is culturally transmitted then even successful government support measures designed to boost current trust are unlikely to be durable and therefore effect the long-term aggregate level of generalised trust (Uslaner, 2008b).

In exploring these central issues, this paper—utilising a commonly used measure of generalised trust (specifically, "*In general, would you say that most people can be trusted, or that you can't be too careful these days*?") drawn from 6 waves of a major UK longitudinal survey—analyses the extent to which trust persists throughout the life-course. Persistence is operationally defined as the tendency for individuals who have certain levels of trust in one period to hold the same outlook in subsequent periods. Conceptually, trust may exhibit this temporal dynamic for two distinct reasons. Firstly, trust in previous periods may have a causal effect on current trust. A consequence of experiencing a particular level of trust is that preferences or any constraints relevant to future trust may be altered. Individuals who have experienced certain levels of trust in the past are therefore more likely to experience them again in the future. For instance, trust is often used as a way of coping with complexity and to facilitate decision making under

uncertainty, especially when risk is hard to calculate (Guseva and Rona-Tas, 2001). High-trust in one period may therefore encourage beneficial cooperative interactions or alternatively, ease the cognitive load of decision making, enhancing the likelihood of future periods of high-trust. This type of temporal persistence is referred to as "true" state dependence. Secondly, in line with the cultural perspective on generalised trust, individuals may possess certain characteristics which make them more likely to hold certain trust attitudes. Characteristics may include socioeconomic factors which are typically observable to the researcher. Alternatively, characteristics transmitted from parents to children, through genetics, pre-adult socialization experiences and culture may not be readily observable. To the extent to which these unobservable characteristics are persistent over time, they will induce persistence in generalised trust. Past trust may therefore appear to have a causal influence on future trust by simply picking up the effect of permanent unobserved individual heterogeneity, a mechanism commonly referred to as "spurious" state dependence. In estimating these causes of persistence, it is possible to analyse the extent to which environmentally triggered changes in an individual's perception of others' trustworthiness today has lasting effects on future trust. If trust is truly state dependent, then successful government support measures will have lasting effects as they will permanently alter the individual's long-term trust state. However, if trust is primarily influenced by permanent characteristics inherited through intergenerational transmission mechanisms, trust is unlikely to be durably influenced by public policy or other environmental forces.

Overall, this paper finds strong evidence in support of the cultural perspective. Generalised trust is found to be a stable, persistent human trait which is characterised by substantial "spurious" state dependence. Whilst generalised trust is open to change—lending some support for the experiential perspective—"true" state dependence effects are only modest in size,

indicating that any changes in generalised trust throughout the life-course will only display partial persistence with an overriding tendency for individuals to revert back to their initial, long-term level of generalised trust.

Data Source and Descriptive Analysis

The data used for analysis are taken from the British Household Panel Survey (BHPS) a nationally representative survey of more than 5,000 households and containing approximately 10,000 individuals aged 16 and over. Households are re-interviewed annually, with 18 waves of annual data available between 1991 and 2008. The sample used in the subsequent analysis is restricted to the original BHPS sample covering Great Britain. The dependent variable in all analyses that follow is the standard generalised trust question, which asks respondents, "*In general, would you say that most people can be trusted, or that you can't be too careful these days*". The question was administered in the 1998, 2000, 2003, 2005, 2007 and 2008 waves of the BHPS. Respondents selecting the '*most people can be trusted*' option are coded 1 (High-Trust), those selecting '*you can't be too careful*' are coded 0 (Low-Trust). Individuals who impulsively responded '*it depends'* (approximately 4% over all waves) were dropped from the analysis.[i] After limiting the sample to include only those individuals who were observed in all of the six waves and who had valid responses to the dependent and independent variables used in the subsequent analysis, yields a final balanced panel of 3,700 individuals with 22,200 individual-year observations. The mean age of the balanced sample is approximately 49 years, spanning from 16 to 96. Just over 56% of the sample are female, 14% report holding a university degree with 18% reporting leaving compulsory schooling with no formal qualifications. Lastly, 64% of the sample are currently in employment. Full summary statistics

for the variables used in the subsequent multivariate analysis are available from Table A1 in the online Appendix.[ii]

To illustrate the persistence of trust revealed in the data, I firstly analyse a Markov Chain with the two possible states of trust, $S = \{0,1\}$, where the transition matrix is given by; $P = \begin{matrix} & 0 & 1 \\ 0 & 0.8240 & 0.1760, \\ 1 & 0.2557 & 0.7443 \end{matrix}$ $n = 18{,}500$. Here the rows indicate previous trust while the columns indicate current trust. For instance, the entries in the second row represent the probabilities for current trust states following a period of high-trust. The probability of high-trust (*low-trust*) conditional on being high-trust (*low-trust*) in the previous period is 74.4% (*82.4%*). This is illustrative of considerable persistence in trust attitudes, although individuals may experience some short-term volatility in trust between the observable periods.

Yet trust is not a once for all phenomenon. Figure 1, presents the distribution of the individual variability in trust, by utilizing the sum of the absolute values of movements from one wave to the next, $\sum_{i=1}^{5} |(Trust_{it+1} - Trust_{it})|$. Approximately 50% of individuals experienced no change in their trust between 1998 and 2008. Of those who experienced at least one change in trust, there is a strong tendency for individuals to revert back to their initial trust state. Only14.6% of individuals exhibited three or more changes in their level of trust.

[Figure 1]

Figure 2 looks at the persistence or conversely, the decay rates of high-trust and low-trust conditional on when the individual was first observed in each trust state. For instance there

were 1,564 individuals initially observed as high-trust in 1998; 70% ($n = 1092$) were still observed as high-trust in 2000 and 44% ($n = 688$) were continuously observed as high-trust throughout the six periods. For the 2,136 individuals initially observed as low-trust in 1998; 54.5% ($n = 1165$) remained as low-trust continuously throughout the remaining periods. It is important to note that these are lower bound estimates owing to the fact that an individual's initial trust status may in some cases be the result of a recent change. To put these figures in perspective, consider a six period game, where people are assigned trust on sequential independent draws from a binomial distribution with constant probabilities across the six periods. Assuming that the probability of high-trust is 0.41 (the approximate stationary distribution of the Markov Chain and the average probability of high-trust in the pooled data), for a sample of 3,700 individuals, I would expect $(0.41^6) \times 3700 = 17.6$ individuals to report high-trust in all six periods. Similarly, I would expect 156 individuals to report low-trust in all six periods.

For individuals who were not initially observed as high-trust in 1998, but who experienced a change to high-trust later in the panel, the decay rates are substantially stronger. This is illustrative of some partial persistence in newly formed trust levels but with a strong tendency for individuals to revert back to their initial trust state. For instance, of the individuals who were first observed as high-trust in 2003 ($n = 330$), only 33% ($n = 108$) were observed as high-trust in the next period and 12.7% ($n = 42$) were observed continuously as high-trust up to and including the last year of the panel. Similar patterns of results reveal themselves for low-trust decay rates.

[Figure 2]

Methodology

To formally model the persistence of trust I use a dynamic random effects probit model to decompose the 'persistence' observed in the raw data into that which can be explained by unobservable permanent heterogeneity ("spurious" state dependence) and "true" state dependence. The general form of the dynamic model can be written as follows:

$$Trust_{it}^{*} = \delta Trust_{it-1} + \beta' X_{it} + \alpha_i + \varepsilon_{it}\,, \quad (i = 1, \ldots., N;\ t = 2, \ldots., T_i) \qquad (1)$$

where $Trust_{it}^{*}$ is the individual's latent probability of trust in each year of the sequence of T_i. An individual is observed to be high-trust, $Trust_{it}$=1, in year t when his/her propensity to trust exceeds a threshold (zero in this case). $Trust_{it-1}$ is a binary indicator for the individual's trust in the previous period and X_{it} is a vector of sociodemographic and socioeconomic control variables which include; age, gender, log-transformed household income, employment status, educational attainment, marital status, housing tenure, ethnicity, the number of dependent children in the household, household size and year effects. These control variables were chosen as resources, education and age in particular have been shown to be strong correlates of trust (Brehm and Rahn, 1997; Uslaner, 2002). The remaining variation in trust is captured by $\alpha_i + \varepsilon_{it}\,,$ where α_i is an unobservable individual-specific attribute or random effect and ε_{it} is the idiosyncratic error term which picks up the effect of time-varying unobservable determinants. Both are assumed to have a mean of zero and be normally distributed, with the variance of ε_{it} normalised to one, and the variance of α_i estimated by the model. Two issues arise from this standard random effects model. Firstly, it assumes that α_i and X_{it} are uncorrelated with each other. Secondly, because a dynamic model is estimated an 'initial conditions' problem arises if $Trust_{i1}$ is correlated with α_i, which induces a correlation between ε_{it} and $Trust_{it-1}$, leading to bias in the parameter estimates. To deal with the initial conditions problem in

estimating dynamic models and to allow α_i to be correlated with the regressors, I follow the respective approaches laid out by Wooldridge (2005) and Mundlak (1978). Specifically, I specify a model that assumes α_i is both correlated with the regressors and the initial endowment of trust. This approach is implemented by parameterizing the individual effect as:

$$\alpha_i = \alpha_0 + \gamma' \bar{X}_i + \varphi Trust_{i1} + u_i \qquad (2)$$

where $\bar{X}_i$ is the individual time means of all the time-varying control variables, u_i is the individual effect which is assumed to be distributed $N(0, \sigma_u^2)$ and $Trust_{i1}$ is the individual's initial trust state. Substituting equation (2) into (1) gives us our full model as shown in equation (3). The parameter δ measures "true" state dependence and therefore the extent to which past trust is passed on to both contemporary and future trust. At the two extreme cases, an exogenously determined change in prior trust (shock) will either be permanently passed on to future trust or alternatively, shocks will fully dissipate and the individual will revert immediately back to his or her base-line trust state. The estimate of φ is also relevant as it provides information about the correlation between the individual effect and the individual's initial trust level.

$$Trust_{it}^{*} = \delta Trust_{it-1} + \beta' X_{it} + \gamma' \bar{X}_i + \varphi Trust_{i1} + u_i + \varepsilon_{it}, \ (i = 1, \ldots., N; \ t = 2, \ldots., T_i) \quad (3)$$

Empirical Results

Table 1 reports the results from the dynamic model presented in equation (3). Marginal effects are reported, where characteristics are held constant and the random effect is set to zero. The marginal effects on the time-varying control variables can be interpreted as measures of short-term transitory effects and are equivalent to estimates from a fixed-effect estimator (Mundlak,

1978). The mean measures of the time-varying control variables can be interpreted as long-term or permanent effects. For brevity I only report the results for the variables of interest. Full results are available from Table A2 in the online Appendix.

Firstly, as the random effects probit restricts ε_{it} to be $N(0,1)$, the total error variance is given by $\sigma_u^2 + 1$. The importance of unobserved permanent heterogeneity in understanding the overall error variance is given by $rho = \sigma_u^2/(\sigma_u^2 + 1)$, which is the intra-class correlation of trust attitudes across periods of observation. When rho is high, unobserved permanent heterogeneity ("spurious" state dependence) is important and individuals can be said to experience high persistence in trust attitudes. When rho is low then individuals experience relatively high random fluctuations and therefore low persistence in trust. From Table 1, unobserved permanent individual heterogeneity is an important influence for trust persistence in the dynamic model, explaining 53.6% of the overall error variance.

Secondly, net of the observed and unobserved individual heterogeneity, a past trust shock has a genuine behavioural effect, in the sense that an observational equivalent individual who did not experience the shock would behave differently in the future than an individual who did. Specifically the "true" state dependence estimate shows a statistically significant positive association between past and contemporary trust. The marginal effect, where characteristics are held constant and the random effect is set to zero, suggests that someone with high-trust in $t-1$ has a probability of contemporary high-trust approximately 10.8 percentage points higher than someone with low-trust in $t-1$. Comparing the "true" state dependence estimate to the raw aggregate probabilities contained in the Markov Chain, approximately 20% of the observable persistence can be attributed to "true" state dependence. The reverse scenario is also true, in that, prior low-trust has a causal effect on the likelihood of contemporary low-trust of

the same magnitude. This may reflect a vicious cycle in which low-trust in one period may promote cheating or diminish cooperative or interpersonal interactions, enhancing the likelihood of low-trust in future periods (Neville, 2012). These estimates, whilst positive and statistically significant, are substantially different from the extreme case where shocks to past trust alter the individual's base-line level of trust indefinitely. In fact, the estimates are closer to the other extreme, where shocks fully dissipate and the individual reverts immediately back to his or her base-line level of trust. To echo this point, the individual's initial trust status is also positive and highly statistically significant representing a strong correlation between an individual's initial trust state and the unobserved permanent heterogeneity. Moreover, initial period trust is more strongly correlated with current trust than previous trust, indicative of some short-term mobility in trust around an underlying base-line level.[iii]

[Table 1]

A final important finding is that both the time-averaged household income variable and the time-averaged university degree variable in the dynamic model, representing relatively fixed underlying socioeconomic differences between individuals, are positive and statistically significant. Additionally, transitory current household income and educational attainment are not statistically significant. This highlights the importance of permanent socioeconomic factors in the formation of generalised trust, as well as the absence of time-varying environmental influences.

Concluding Remarks

Despite the burgeoning literature on the contrasting cultural and experiential perspectives of generalised trust, the persistence of trust throughout an individual's life-course has remained

an untested area of research. Using an innovative methodology I find that trust, whilst not a fixed human trait, does display high levels of temporal persistence—the tendency for individuals who have certain levels of trust in one period to hold the same outlook in subsequent periods. Firstly, this paper provides support for the cultural perspective, in that, permanent observable and unobservable characteristics explain a substantial proportion of this persistence. Whilst evidence is provided that generalised trust is open to fluctuations, trust is found to exhibit only moderate "true" state dependence, indicating that any changes in generalised trust throughout the life-course will only display partial persistence, with an overriding tendency for individuals to revert back to their initial, long-term level. This in itself has important implications for a central question in social capital research, namely whether attributes such as trust can be durably influenced by public policy (Putnam, 1993; Uslaner, 2002). If our underlying propensity to trust is not based upon our immediate experiences but upon strong cultural roots, then it is difficult to see how public policy can durably influence trust, unless these policies target the deeper values societies hold. For instance, promoting equality through the redistribution of resources is within the capacity of governments (Uslaner, 2002).

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[i] Generalised trust is sometimes asked on an 11-point scale. However, responses on this broader scale tend to be clustered around the middle, which makes it difficult to distinguish between different types of trust (Uslaner, 2008b).

[ii] Sample attrition rates in the BHPS are generally low and certainly comparable to those achieved in other similar household panels. In common with nearly all previously published research using this data source, attrition is assumed to be a random event.

[iii] Estimation using a larger unbalanced sample gave qualitatively and quantitatively similar results. Results were also similar when the estimation strategy was conducted on sub-samples based upon gender, age, household income and education.

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Figure 1: Frequency distribution of the observed variability in trust (absolute value of movements)

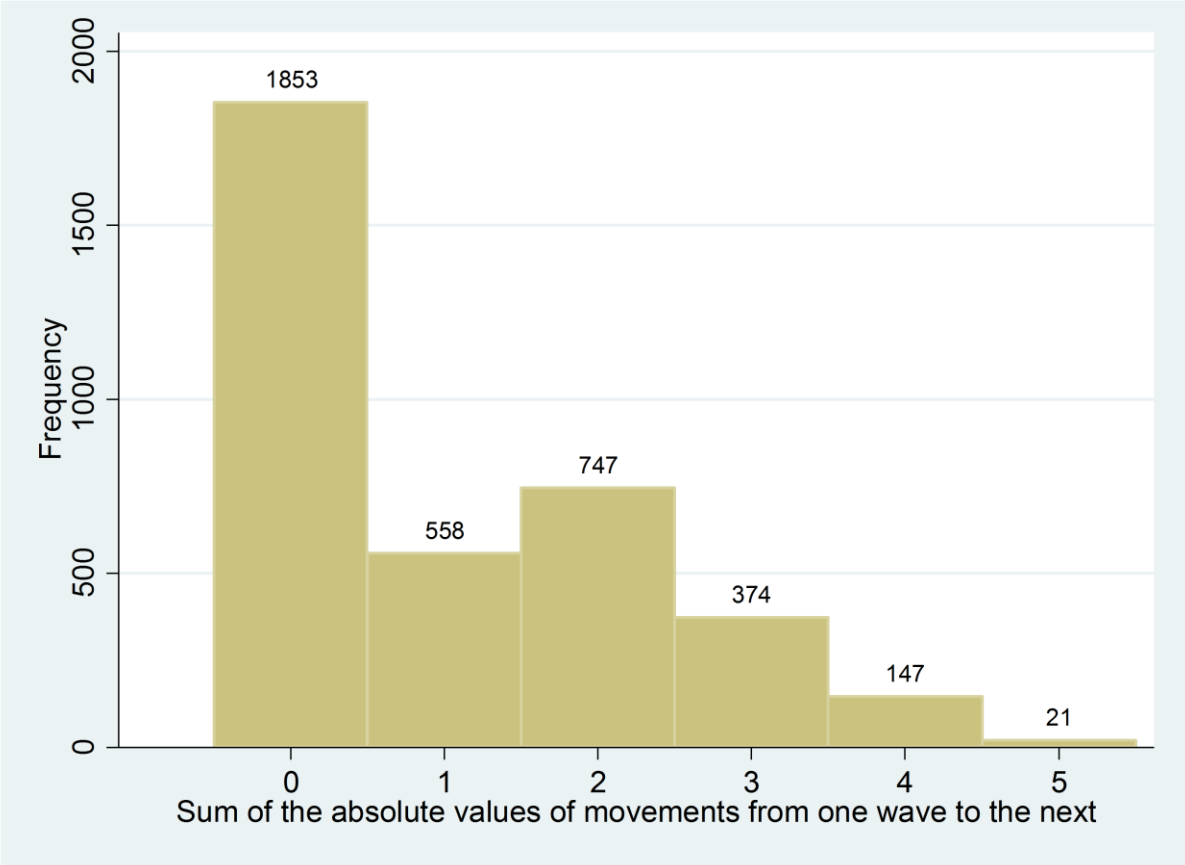

Figure 2: Persistence and decay rates for high-trust and low-trust

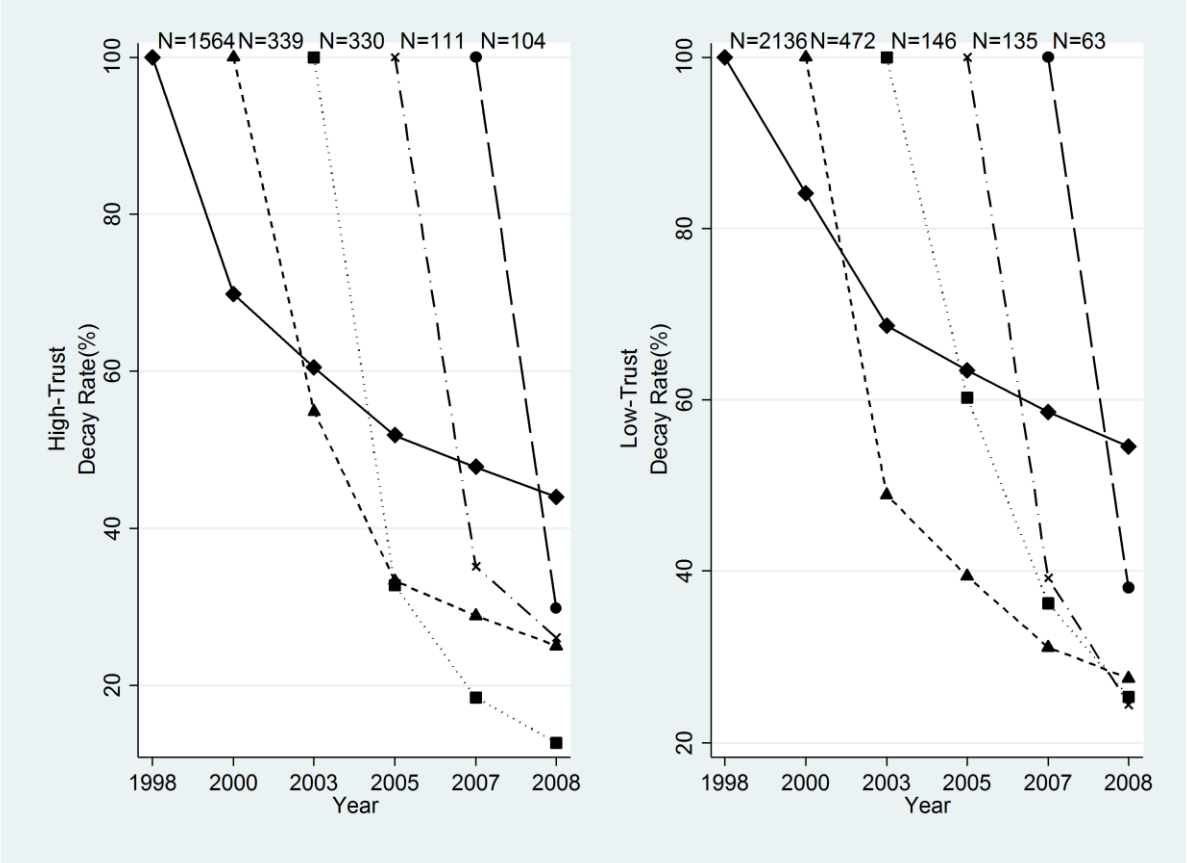

Table 1: Correlates of Trust - Dynamic Correlated Random Effects Probit

Variables	Marginal Effects	Robust Standard Errors
$Trust_{t-1}$	0.108**	0.015
Age	0.011	0.028
Female	-0.014	0.018
Log household income	0.008	-0.008
Educational attainment (reference: no qualifications)		
University degree	0.125	0.106
Vocational college qualification	-0.012	0.081
A-Level	-0.008	0.093
O-Level/GCSE's	0.006	0.088
Other qualifications	0.044	0.124
$Trust_1$	0.600**	0.018
Mean - Age	-0.006	0.028
Mean - Log household income	0.096**	0.020
Mean - University degree	0.249*	0.113
Mean - Vocational college qualification	0.147	0.086
Mean - A-Level	0.182	0.101
Mean - O-Level/GCSE's	0.125	0.094
Mean - Other qualifications	0.028	0.130
$rho = \sigma_u^2/(\sigma_u^2 + 1)$	0.536**	0.016
Log Likelihood	-8157.93	
Observations	18,500	
Number of Individuals	3,700	

Notes: Main entries are unstandardized marginal effects. Robust standard errors are adjusted for intra-individual correlation. The model also includes employment status, marital status, housing tenure, ethnicity, the number of dependent children in the household, household size and year effects as additional control variables. The model also includes the time means of all the time-varying control variables. Asterisks indicate significant coefficients ($* \; p < 0.05, \; ** \; p < 0.01$).

Online Appendix

Table A1: Descriptive Statistics

Variables	*Mean*	*Std. Dev.*
Dependent Variable		
Trust	0.413	
Control Variables		
Female	0.562	
Age	49.127	15.906
White	0.977	
Married	0.751	
Widowed	0.141	
Single, never married	0.108	
Divorced/separated	0.082	
Own house outright	0.317	
Own house with mortgage	0.492	
Rents house, private sector	0.060	
Rents house, social sector	0.131	
University degree	0.141	
Vocational college qualification	0.326	
A-Level	0.096	
O-Level/GCSE's	0.165	
Other qualifications	0.084	
No qualifications	0.188	
Number of dependent children in the household	0.564	0.945
Household size	2.769	1.279
Log household income	7.693	0.925
Self-employed	0.074	
Employee	0.565	
Unemployed	0.017	
Economically inactive	0.344	
Observations	22,000	
Number of Individuals	3,700	

Table A2: Correlates of Trust - Dynamic Correlated Random Effects Probit

Variables	Marginal Effects	Robust Standard Errors
$Trust_{t-1}$	0.108**	0.015
$Trust_1$	0.600**	0.018
Female	-0.014	0.018
Age	0.011	0.028
White	0.146*	0.059
Marital status (reference: single, never married)		
Married	0.016	0.037
Widowed	-0.052	0.066
Divorced/separated	0.023	0.063
Housing tenure (reference: social sector renter)		
Own house outright	0.084	0.050
Own house with mortgage	0.086	0.047
Rents house, private sector	0.025	0.050
Educational attainment (reference: no qualifications)		
University degree	0.125	0.106
Vocational college qualification	-0.012	0.081
A-Level	-0.008	0.093
O-Level/GCSE's	0.006	0.088
Other qualifications	0.044	0.124
Number of dependent children in the household	0.027	0.014
Household size	-0.014	0.011
Log household income	0.008	0.008
Employment status (reference: employee)		
Self-employed	0.049	0.034
Unemployed	-0.014	0.054
Economically inactive	-0.028	0.024
Mean - Age	-0.006	0.028
Mean - Married	-0.007	0.052
Mean - Widowed	0.066	0.084
Mean - Divorced/separated	-0.017	0.080
Mean - Own house outright	-0.017	0.059
Mean - Own house with mortgage	0.024	0.058
Mean - Rents house, private sector	0.124	0.074
Mean - University degree	0.249*	0.113
Mean - Vocational college qualification	0.147	0.086
Mean - A-Level	0.182	0.101
Mean - O-Level/GCSE's	0.125	0.094
Mean - Other qualification	0.028	0.130
Mean - Number of dependent children in the household	0.013	0.023
Mean - Household size	-0.036*	0.018

Mean - Log household income	0.096**	0.020
Mean - Self-employed	-0.023	0.052
Mean - Unemployed	-0.238	0.141
Mean - Economically inactive	-0.031	0.039
$rho = \sigma_u^2/(\sigma_u^2 + 1)$	0.536**	0.016
Log Likelihood	-8157.93	
Observations	18,500	
Number of Individuals	3,700	

Notes: Main entries are unstandardized marginal effects. Robust standard errors are adjusted for intra-individual correlation. The model also includes year effects as additional control variables. Asterisks indicate significant coefficients ($* p < 0.05$, $** p < 0.01$).